

**Secure Spread Spectrum Watermarking for  
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Ingemar J. Cox, Joe Kilian, Tom Leighton, Talal Shamoon  
IEEE Transactions on Image Processing

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**Abstract:** We describe a digital watermarking method for use in audio, image, video and multimedia data. We argue that a watermark must be placed in perceptually significant components of a signal if it is to be robust to common signal distortions and malicious attack. However, it is well known that modification of these components can lead to perceptual degradation of the signal. To avoid this, we propose to insert a watermark into the spectral components of the data using techniques analogous to spread...  
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.... Coventry, CV4 7AL United Kingdom email: yaozhen ieee.org **ABSTRACT** Conventional approaches to embedding digital watermarks [1] are done by adjusting spatial pixel values or frequency coefficients. We propose a novel way to achieve attack detection by calculating the image...

...most algorithms, a watermark is usually embedded into the spectral domain [1] of an image. The embedded watermark can be detected with [2] or without [1] the use of the original image. To make efficient trade offs between robustness and invisibility of a watermark, some...

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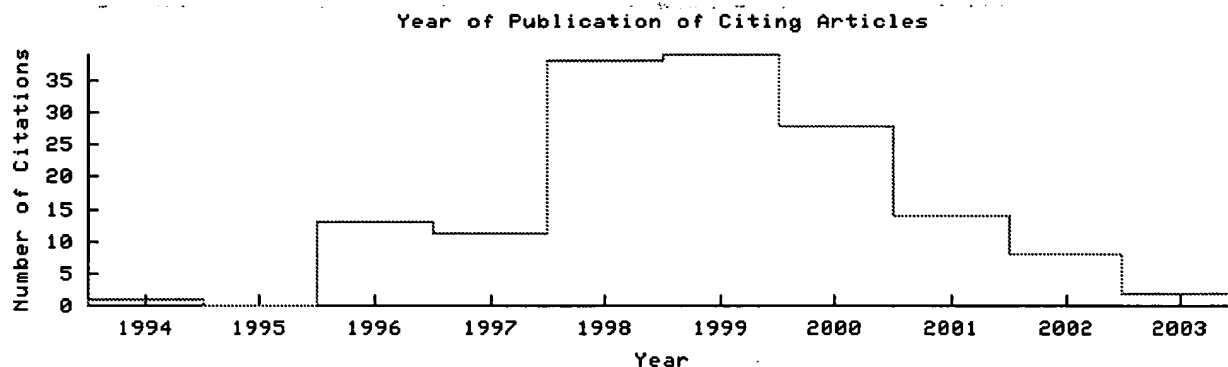
I. J. Cox, J. Kilian, T. Leighton, and T. Shamoon. Secure Spread Spectrum Watermarking for Multimedia. Technical Report 95-10, NEC Research Institute, Princeton, NJ, 1995.

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